

## ABSTRACT

There is provided a control method for a premixed compression ignition internal combustion engine, which is capable of responding easily to a sudden change in operating conditions. In a control method for a premixed compression ignition internal combustion engine 5 in which a gaseous mixture of an oxygen-containing gas and a fuel is compressed and self-ignited within a cylinder, cyclohexene is mixed with the fuel to be supplied to the premixed compression ignition internal combustion engine according to the operating conditions of the internal combustion engine. The premixed compression ignition internal combustion engine 5 has supply means 1 for supplying a first fuel and supply means 2 for supplying a second fuel that contains cyclohexene and whose self-ignition delay time is set so as to be longer than that of the first fuel. The first fuel consists of fuels other than cyclohexene. The supply amounts of the first and second fuels are changed according to the operating conditions of the internal combustion engine 5. Specifically, the supply amounts of the first and second fuels are changed respectively so that when the internal combustion engine 5 is operated at higher loads, the ratio of the first fuel to all fuel supplied to the internal combustion engine 5 decreases, and when the internal combustion engine 5 is operated at lower loads, the ratio of the first fuel to all fuel supplied to the internal combustion engine 5 increases.